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**Please find below and/or attached an Office communication concerning this application or proceeding.**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/549,526  
Filing Date: September 19, 2005  
Appellant(s): NESVADBA ET AL.

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/549,526  
Filing Date: September 19, 2005  
Appellant

Joseph C. Suhadolnik  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 5/04/2009 appealing from the Office action mailed on 8/10/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,538,141

GILLET et al

3-2003

Hawley G. G. *The Condensed Chemical Dictionary*, eighth ed. , 1971, pp. 790, 829

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The Status of Claims

Claims 1-10 are pending.

Claims 1-10 are rejected.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claim 10 under 35 U.S.C. 112, second paragraph, has been withdrawn.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillet et al (US 6,538,141) in view of Hawley (The Condensed Chemical Dictionary (8<sup>th</sup> ed., 1971, pages 790 and 829).

Gillet et al discloses the preparation of secondary nitroxide radicals in the following example (see col. 9 , Ex. 1 ):

### EXAMPLE 1

#### Preparation of (2,2,6,6-tetramethyl-piperidine) N-oxide (TEMPO)

An organic solution consisting of 5 g of 2,2,6,6-tetramethylpiperidine (i.e. 0.0354 mol) dissolved in 20 ml of dichloromethane is prepared with stirring in a 100 ml round-bottomed flask fitted with 2 dropping funnels, a condenser, a pH-measuring probe and a stirrer. 20 ml of water are then added to this solution so as to have a two-phase system. Next, 10.8 g of a 40% solution of peracetic acid in acetic acid and aqueous 35% by weight  $K_2CO_3$  solution are introduced (with stirring) slowly and simultaneously. The molar amount of peracetic acid introduced is 0.0568 mol, which corresponds to a peracetic acid/amine molar ratio of 1.6.

The amount of aqueous  $K_2CO_3$  solution is adjusted such that the pH of the aqueous phase of the two-phase medium is maintained at between 7.2 and 7.5 in the course of the addition.

20 minutes after the addition, the total disappearance of the amine and the formation of TEMPO are found by gas chromatography (GC).

The reaction is stopped and  $K_2CO_3$  solution is added so as to obtain a pH equal to 9, and the red-colored TEMPO is then extracted with  $CH_2Cl_2$ .

Evaporation of the solvent gives 4.9 g of TEMPO with a melting point equal to 36° C. The purity of the TEMPO is checked by GC relative to a sample of pure product (purity greater than 99%) sold by the company Aldrich.

Mass spectrum (m/e): 157 (M+1)

The yield of TEMPO relative to the amine used is 88%.

However, the instant invention differs from the prior art in that the claimed base is used in the form of a solid or slurry instead of the aqueous basic solution in the prior art process.

Even so, with respect to the use of the base in the form of the solid or slurry, the Gillet et al prior art expressly teaches the potential use of the solid or slurry base in the process during the reaction with peracid; this can be easily seen by reviewing the following paragraph (see col. 3, lines 23-27):

The weight concentration of the aqueous solutions of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates is set by the solubility limit of these species in water. Efforts will be made to use solutions that are as concentrated as possible.

Furthermore, the prior art does disclose a generic teaching that describes the selection of an aqueous solution of a carbonate or hydrogen carbonate of an alkali metal or of an alkaline earth metal so that the pH of the aqueous solution of the two phase medium is maintained at a value from 5 to 9 (see col. 3, lines 9-13); among the examples of carbonates of alkali metal or the alkaline earth metal elements, there is  $\text{SrCO}_3$ , which is naturally slightly soluble in water according to Hawley's The Condensed Chemical Dictionary (see 8<sup>th</sup> ed., 1971, page 829); therefore, it partially remains in the solid form so that it can be used as the partial solid base in the process, just as the claimed process is intended to perform it in that manner. Thus, it would have been obvious to the skilled artisan in the art to be motivated to incorporate the teaching of Hawley's sparingly soluble  $\text{SrCO}_3$  as an alkaline earth metal carbonate into the Gillet et al process in order to control the content of water in the base solution as well as the pH of the reaction mixture. This is because the skilled artisan in the art would expect such a manipulation to be within the purview of the skilled artisan in the art as shown in the prior art.

**(10) Response to Argument**

1. Appellants argue that there is a significant difference between the prior art process and the claimed process in that the prior art process adds a solution of base at intervals during the reaction with peracid and the instant process adds all of the base at once in the form of a solid or as a slurry, thereby affording the advantages of controlling pH simply and effectively and reducing the water needed during the reaction so as to lower the cost of production.

Appellants' argument has been noted, but the argument is not persuasive. Regardless of whether the solution of base is added at intervals or all of the base is added at once during the process, this is irrelevant to the claimed invention since the claims are unspecified in that respect. Just like the claimed process, the Gillet et al prior art expressly teaches the potential use of the solid or slurry base in the process during the reaction with peracid; this can be easily seen by reviewing the following paragraph (see col. 3, lines 23-27):

The weight concentration of the aqueous solutions of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates is set by the solubility limit of these species in water. Efforts will be made to use solutions that are as concentrated as possible.

From this, it becomes clear that there is an intent or motivation that the aqueous solution of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates should be concentrated as much as possible so that it may later turn into like a form of slurry. Therefore, if the skilled artisan in the art had desired to reduce the cost of operation, it would have been obvious to the skilled artisan in the art to be motivated to reduce the water content of the base



solution as much as possible to become like the slurry prior to applying it to the reaction process in the prior art. This is because the skilled artisan in the art would expect such a modification to be successful as well as feasible as guidance (see col. 3, lines 23-27) shown in the prior art process. Therefore, Appellants' argument is not persuasive.

2. Appellants argue that the prior art is not only silent about using a solid base, but also, it excludes the use of a solid base because the base is added as a solution in portions simultaneously with addition of the peracid to maintain a particular pH profile during the course of the reaction and there are only solutions are to be used and the large amount of water is needed to dissolve the whole base.

Appellants' argument has been noted, but the argument is not persuasive.

Unlike applicants' argument, the claims are directed to a base selected from the group consisting of alkali metal bicarbonates, alkaline earth metal bicarbonates, alkaline earth metal carbonates, ammonium carbonates and mixtures thereof in the form of a solid together with water or as an aqueous slurry. Regardless of adding it in proportions, the prior art does offer guidance or motivation that "efforts will be made use solutions that are as concentrated as possible" (see col. 3, lines 26-27) while forming the basic solution. From this teaching, it does imply that, when the basic solution becomes so concentrated, it naturally becomes a slurry whose definition is a thin watery suspension according to Hawley's The Condensed Chemical Dictionary (see 8<sup>th</sup> ed., 1971, page 790). Thus, it seems obvious that the skilled artisan in the art can make a reasonable selection among carbonates or hydrogen carbonates of alkali metals or of

an alkaline earth metals available in the prior art in order to prepare the slurry type of the basic solution, while maintaining the pH of the aqueous solution of the two phase medium at a value from 5 to 9 (see col. 3 ,lines 9-13); this is within the purview of the skilled artisan's knowledge in the art; among the examples of carbonates of the alkaline earth metal elements,  $\text{SrCO}_3$  slightly soluble in water is naturally fallen into this category according to Hawley's The Condensed Chemical Dictionary (see 8<sup>th</sup> ed., 1971, page 829); therefore, it means that it can partially remain in the solid form so as to use it as the solid base, just as the claimed process is intended to perform it in that manner. Therefore, regardless of adding the base in portions simultaneously to the peracid, it would have been obvious to the skilled artisan in the art to be motivated to choose the solid form of carbonates of alkali metal or the alkaline earth metal elements in the basic solution in order to control the content of water in the base solution as well as the pH of the reaction mixture. This is because the skilled artisan in the art would expect such a manipulation to be within the purview of the skilled artisan in the art as shown in the prior art. Therefore, Appellants' argument is not persuasive.

3. Appellants argue that the prior art process has the difficulty of accurately determining pH in a heterogeneous mixture in the emulsion.

Appellants' argument has been noted, but the argument is not persuasive. Unlike applicants' argument, there is no negative teaching of determining pH in a heterogeneous mixture in the emulsion in the prior art. Rather, it expressly teaches that a sufficient amount of an aqueous basic solution of a carbonate or hydrogen carbonate of an alkali metal or of an

alkaline earth metal is added to a proper ratio of peracid and secondary amine mixture so that the pH of the aqueous solution of the two phase medium is maintained at a value from 5 to 9 (see col. 3 ,lines 7-13). Furthermore, in example 1 , it shows that there is no difficulty in adjusting the amount of aqueous  $K_2CO_3$  solution so as to maintain the pH of the aqueous phase of the two-phase medium at between 7.2 and 7.5 (see col. 9 ,lines 35-39). Moreover, applicants does not claim any limitation related to the pH adjustment in the solution. Thus, it seems clear that the accuracy of determining pH in the mixture is not much important in the reaction process. Therefore, Appellants' argument is not persuasive.

4. Appellants argue that the instant process allows one to use some bases whereas others are not allowable due to low solubility in water, such as  $CaCO_3$ ,  $MgCO_3$  or Dolomite( $CaCO_3 \cdot xMgCO_3$ ) as similarly shown in the method of the prior art.

Appellants' argument has been noted, but the argument is not persuasive. Unlike applicants' argument, the claims are directed to the base selected from the group consisting of alkali metal bicarbonates, alkaline earth metal bicarbonates, alkaline earth metal carbonates, ammonium carbonates and mixtures thereof. This is clearly taught in the prior art when reviewed the following passages (see col. 3, lines 9-14) :

sufficient amount of an aqueous basic solution of a carbonate or hydrogen carbonate of an alkali metal or of an alkaline-earth metal so that the pH of the aqueous solution of the two-phase medium is maintained at a value ranging from 4 to 12 and preferably ranging from 5 to 9.

Furthermore, there is no negative proviso statement in the claims regarding the specific use of the particular base in the claimed process. Therefore, Appellants' argument is not persuasive.

5. Appellants argue that one could not anticipate that the use of a solid base or slurry could adequately substitute for the solution of the prior art instant process because the prior art discloses that the weight concentration of the aqueous solutions of alkali metal or alkaline-earth metal carbonates or hydrogen carbonates is set by the solubility limit of these species in water.

Unlike applicants' argument, the prior art does point out that the generic teaching describes the selection of an aqueous solution of a carbonate or hydrogen carbonate of an alkali metal or of an alkaline earth metal (see col. 3, lines 9-11) as the base for the process and "efforts will be made use solutions that are as concentrated as possible" (see col. 3, lines 26-27) while forming the basic solution. From these teachings, it follows that there is an expectation for changing from the solution to the slurry; this is because, when the basic solution becomes so concentrated, it naturally becomes precipitated or a slurry whose definition is a thin watery suspension according to Hawley's The Condensed Chemical Dictionary (see 8<sup>th</sup> ed., 1971, page 790). In addition, there is no negative teaching at all in the prior art that the basic solution would be unusable if the basic solution turned into a solid or slurry. Thus, it seems so obvious that the skilled artisan in the art can make a reasonable choice among carbonates or hydrogen carbonates

of various alkali metals or of an alkaline earth metals available in the prior art in order to prepare the concentrated form of the basic solution just like the slurry type of the basic solution; among the examples of carbonates of the alkaline earth metal elements,  $\text{SrCO}_3$  slightly soluble in water is naturally fallen into this category according to Hawley's The Condensed Chemical Dictionary (see 8<sup>th</sup> ed., 1971, page 829). Therefore, it means that it can partially remain in the solid form and be used as the partial solid base, just as the claimed process is intended to perform it in that manner. This is well within the purview of the skilled artisan's knowledge in the art. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to choose the solid form of carbonates of alkali metal or the alkaline earth metal elements in the basic solution in order to control the content of water in the base solution, thereby economizing the process. This is because the skilled artisan in the art would expect such a manipulation to be within the purview of the skilled artisan in the art as shown in the prior art. Therefore, Appellants' argument is not persuasive.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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